



In re Application of:
Sun, et al.

Serial No.: 10/611,805

Confirmation No.: 5060

Filed: June 30, 2003

For: Effective Method to Improve Surface Finish in Electrochemically Assisted CMP

www.ck12.org

Group Art Unit: 1742

Examiner: Nira S. Birenbaum

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING
37 CFR 1.8

I hereby certify that this correspondence is being deposited on November 21, 2005 with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

November 21, 2005
Date

Brian K. Hrna

Dear Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

The Commissioner is hereby authorized to charge the sum of \$180.00 due under 37 CFR § 1.17(p) pursuant to § 1.97, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/APPM/006877/BKH.

Respectfully submitted,



Brian K. Hrna
Registration No. 41,852
PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd. Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
Facsimile: (713) 623-4846
Attorney for Applicant(s)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

**SUPPLEMENTAL
INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1

of 5

Application Number	10/611,805
Filing Date	June 30, 2003
First Named Inventor	Sun, et al.
Group Art Unit	1742
Examiner Name	Nira S. Birenbaum
Attorney Docket Number	APPM/006877/PPC/CMP/CKIM
Submission Date	November 21, 2005

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A1	US-3,162,588	12/22/1964	Bell	
	A2	US-3,448,023	6/3/1969	Bell	
	A3	US-4,396,467	8/2/1983	Anthony	
	A4	US-4,466,864	8/21/1984	Bacon, et al.	
	A5	US-4,496,436	1/29/1985	Inoue	
	A6	US-4,789,437	12/6/1988	Sing, et al.	
	A7	US-4,839,005	6/13/1989	Katsumoto, et al.	
	A8	US-4,869,971	9/26/1989	Nee, et al.	
	A9	US-4,956,056	9/11/1990	Zubatova, et al.	
	A10	US-5,032,238	7/16/1991	Ishimura, et al.	
	A11	US-5,039,381	8/13/1991	Mullarkey	
	A12	US-5,096,550	3/17/1992	Mayer, et al.	
	A13	US-5,114,548	6/19/1992	Rhoades	
	A14	US-5,141,602	8/25/1992	Chen, et al.	
	A15	US-5,156,730	10/20/1992	Bhatt, et al.	
	A16	US-5,217,586	6/8/1993	Datta, et al.	
	A17	US-5,256,565	10/26/1993	Bernhardt, et al.	
	A18	US-5,340,370	8/23/1994	Cadien, et al.	
	A19	US-5,503,730	4/2/1996	Osano, et al.	
	A20	US-5,522,965	6/4/1996	Chisholm, et al.	
	A21	US-5,567,300	10/22/1996	Datta, et al.	
	A22	US-5,637,031	6/10/1997	Chen	
	A23	US-5,637,185	6/10/1997	Murarka, et al.	
	A24	US-5,664,990	9/9/1997	Adams, et al.	
	A25	US-5,683,538	11/4/1997	O'Neill, et al.	
	A26	US-5,705,230	1/6/1998	Matanabe, et al.	
	A27	US-5,738,574	4/14/1998	Tolles, et al.	
	A28	US-5,807,165	9/15/1998	Uzoh, et al.	
	A29	US-5,827,435	10/27/1998	Samukawa	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for form 1449A/PTO

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2

of 5

Application Number

10/611,805

Filing Date

June 30, 2003

First Named Inventor

Sun, et al.

Group Art Unit

1742

Examiner Name

Nira S. Birenbaum

Attorney Docket Number

APPM/006877/PPC/CMP/CKIM

Submission Date

November 21, 2005

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A30	US-5,846,398	12/8/1998	Carpio	
	A31	US-5,885,469	3/23/1999	Kholodenko, et al.	
	A32	US-5,911,619	6/15/1999	Uzoh, et al.	
	A33	US-5,972,192	10/26/1999	Dubin, et al.	
	A34	US-6,004,880	12/21/1999	Liu, et al.	
	A35	US-6,010,964	1/4/2000	Glass	
	A36	US-6,027,630	2/22/2000	Cohen	
	A37	US-6,056,864	5/2/2000	Cheung	
	A38	US-6,066,030	5/23/2000	Uzoh	
	A39	US-6,071,388	6/6/2000	Uzoh	
	A40	US-6,090,239	7/18/2000	Liu, et al.	
	A41	US-6,143,155	11/7/2000	Adams, et al.	
	A42	US-6,176,992	1/23/2001	Talieh	
	A43	US-6,203,684	3/20/2001	Taylor, et al.	
	A44	US-6,234,870	5/22/2001	Uzoh, et al.	
	A45	US-6,248,222	6/19/2001	Wang	
	A46	US-6,251,235	6/26/2001	Talieh, et al.	
	A47	US-6,258,220	7/10/2001	Dordi, et al.	
	A48	US-6,261,433	7/17/2001	Landau	
	A49	US-6,299,741	10/9/2001	Sun, et al.	
	A50	US-6,315,883	11/13/2001	Mayer, et al.	
	A51	US-6,328,872	12/11/2001	Talieh, et al.	
	A52	US-6,354,916	3/12/2002	Uzoh, et al.	
	A53	US-6,355,153	3/12/2002	Uzoh, et al.	
	A54	US-6,379,223	4/30/2002	Sun, et al.	
	A55	US-6,386,956	5/14/2002	Sato, et al.	
	A56	US-6,391,166	5/21/2002	Wang	
	A57	US-6,395,152	5/28/2002	Wang	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

**SUPPLEMENTAL
INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 3

of 5

Application Number	10/611,805
Filing Date	June 30, 2003
First Named Inventor	Sun, et al.
Group Art Unit	1742
Examiner Name	Nira S. Birenbaum
Attorney Docket Number	APPM/006877/PPC/CMP/CKIM
Submission Date	November 21, 2005

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A58	US-6,409,904	6/25/2002	Uzoh, et al.	
	A59	US-6,432,282	8/13/2002	Shamouilian, et al.	
	A60	US-6,440,495	8/27/2002	Wang	
	A61	US-6,471,847	10/29/2002	Talieh, et al.	
	A62	US-6,482,307	11/19/2002	Ashjaee, et al.	
	A63	US-6,497,800	12/24/2002	Talieh, et al.	
	A64	US-6,630,059	10/7/2003	Uzoh, et al.	
	A65	US-6,726,823	4/27/2004	Wang, et al.	
	A66	US-6,749,728	6/15/2004	Wang	
	A67	US-2001/0035354	11/1/2001	Ashjaee, et al.	
	A68	US-2001/0036746	11/1/2001	Sato, et al.	
	A69	US-2001/0040100	11/15/2001	Wang	
	A70	US-2001/0042690	11/22/2001	Talieh	
	A71	US-2002/0008036	1/24/2002	Wang	
	A72	US-2002/0011417	1/31/2002	Talieh, et al.	
	A73	US-2002/0020621	2/21/2002	Uzoh, et al.	
	A74	US-2002/0070126	6/13/2002	Sato, et al.	
	A75	US-2002/0072309	6/13/2002	Sato, et al.	
	A76	US-2002/0088715	7/11/2002	Talieh, et al.	
	A77	US-2002/0160698	10/31/2002	Sato, et al.	
	A78	US-2003/0104762	6/5/2003	Sato, et al.	
	A79	US-2003/0114004	6/19/2003	Sato, et al.	
	A80	US-2004/0050817	3/18/2004	Sun, et al.	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for form 1449A/PTO

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 4

of 5

Application Number

10/611,805

Filing Date

June 30, 2003

First Named Inventor

Sun, et al.

Group Art Unit

1742

Examiner Name

Nira S. Birenbaum

Attorney Docket Number

APPM/006877/PPC/CMP/CKIM

Submission Date

November 21, 2005

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ² -Number ⁴ -Kind Code ⁵ (if known)				
	B1	EP 0 455 455	11/6/1991	Miller, et al.		
	B2	EP 0 738 561	10/23/1996	Birang, et al.		
	B3	EP 0 905 754 (English Abstract)	3/31/1999	Dipl-ing, et al.		X
	B4	JP 11 238703 (English Abstract)	8/31/1999	Kazuyoshi		X
	B5	JP 01-77117 (English Abstract)	3/23/2001	Takeshi, et al.		X
	B6	JP 53-37543 (English Abstract)	4/6/1978	Niro, et al.		X
	B7	WO 98/49723	11/5/1998	Kaisaki, et al.		
	B8	WO 99/25905	5/27/1999	Patton, et al.		
	B9	WO 99/26758	6/3/1999	Weihs, et al.		
	B10	WO 99/53119	10/21/1999	Wang		
	B11	WO 99/54527	10/28/1999	Landau		
	B12	WO 99/65072	8/31/1999	Adams, et al.		
	B13	WO 00/03426	1/20/2000	Wang		
	B14	WO 00/26443	5/11/2000	Talieh		
	B15	WO 00/59682	10/12/2000	Talieh, et al.		
	B16	WO 01/88229	11/22/2001	Wang, et al.		
	B17	WO 02/23616	3/21/2002	Wang		

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for form 1449A/PTO

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 5

of 5

Application Number	10/611,805
Filing Date	June 30, 2003
First Named Inventor	Sun, et al.
Group Art Unit	1742
Examiner Name	Nira S. Birenbaum
Attorney Docket Number	APPM/006877/PPC/CMP/CKIM
Submission Date	November 21, 2005

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	C1	Contolini, et al., "Electrochemical Planarization of ULSI Copper", Solid State Technology, June 1997, pp. 155-161, Vol. 40, No. 6, Cowan Pub. Corp., Washington, USA.	
	C2	European Search Report from EP 00 31 0358, Dated 10 October 2001.	
	C3	Nogami, " An Innovation to Integrate Porous Low-K Materials and Copper", <u>Interconnect Japan 2001</u> ; Honeywell Seminar (December 6, 2001), pages 1 - 12.	
	C4	Padhi, et al., "Planarization of Copping Thin Films by Electropolishing in Phosphoric Acid for ULSI Applications" Journal of the Electrochemical Society, 150(1) (2003) pp. G10-G14.	
	C5	Partial Eurpean Searh Report for EP 00 31 0560, dated December 12, 2003. (AMAT/003907)	
	C6	Yu, et al. Appl. Phys. Let, "Dishing Effects in a Chemical Mechanical Polishing Planarization Process for Advanced Trench Isolation", September 14, 1992, pp. 1344-1346.	

Examiner

Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.